(54) Title: METHOD FOR COMPRESSING AND DECOMPRESSING VIDEO IMAGE DATA

(54) Bezeichnung: VERFAHREN ZUM KOMPRIMIEREN UND DEKOMPRIMIEREN VON VIDEOBILDDATEN
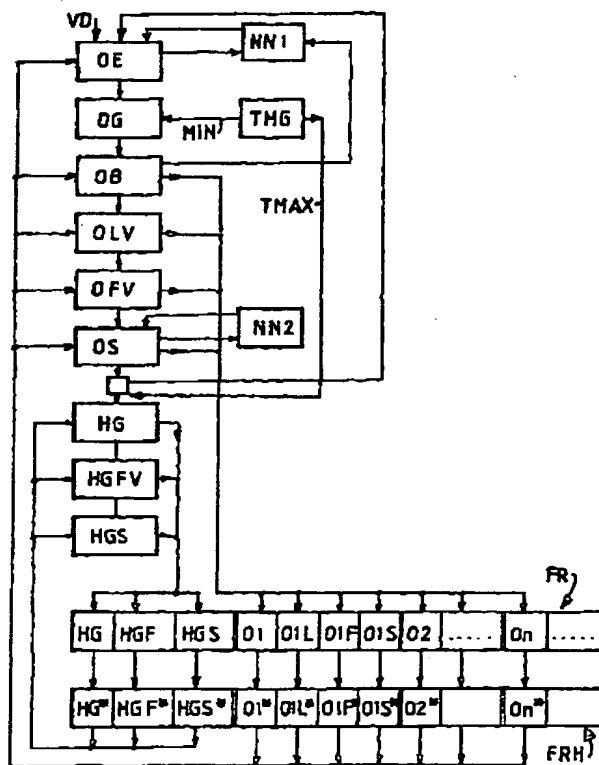
(57) Abstract: A method for compressing and decompressing video image data, wherein the contours of image structures are determined in a basic analysis of the video data contained in a video image by means of sudden modifications of brightness and/or tristimulus value in adjacent pixels; the contours thus found are respectively described in segments by means of a parameterized mathematical function and are defined as objects; a color dominance and a color characteristic is determined for the individual objects, in addition to the position and extension of the individual objects and a structural function, such that differential modifications in brightness, size, position and orientation of said objects are determined in sequential analyses of video images, taking into account common contours of contiguous objects. The objects thus defined are placed in a structured base frame or sequential frame and are prepared. Contour analysis and structural analysis is carried out by means of neuronal networks.

(57) Zusammenfassung: Verfahren zum Komprimieren und Dekomprimieren von Videobilddaten, wobei in einer Grundanalyse der Videodaten eines Videobildes Konturen von Bildstrukturen anhand von sprunghaften Änderungen von Helligkeit und/oder Farbwert bei einander benachbarten Pixeln ermittelt werden, die so gefundenen Konturen, jeweils abschnittweise durch eine parametrisierte mathematische Funktion beschrieben und als Objekte definiert werden, für die einzelnen Objekte eine Farbdominanz und ein Farbverlauf sowie die Lage und eine Erstreckung der einzelnen Objekte und eine Strukturfunktion ermittelt wird, und dass bei Folgeanalysen von Videobildern jeweils

[Fortsetzung auf der nächsten Seite]

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/07451

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06T9/00 G06T9/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06T H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CHRISTOPOULOS V A ET AL: "Segmented image coding with contour simplification for video sequences" PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON IMAGE PROCESSING (ICIP) LAUSANNE, SEPT. 16 - 19, 1996, NEW YORK, IEEE, US, vol. 1, 16 September 1996 (1996-09-16), pages 693-696, XP010202160 ISBN: 0-7803-3259-8 abstract Abschnitt "1. Introduction" Abschnitt "2. Components of the Segmented Image Video Coding System" figure 1 —/—	1-13

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 October 2003	28/10/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Eckert, L

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	CHUANG GU ET AL: "Very low bit-rate video coding using multi-criterion segmentation" PROCEEDINGS OF THE INTERNATIONAL CONFERENCE ON IMAGE PROCESSING (ICIP) AUSTIN, NOV. 13 - 16, 1994, LOS ALAMITOS, IEEE COMP. SOC. PRESS, US, vol. 3 CONF. 1, 13 November 1994 (1994-11-13), pages 418-422, XP010146204 ISBN: 0-8186-6952-7 the whole document	1-13
A	EDIRISINGHE E A ET AL: "A contour analysis based technique to extract objects for MPEG-4" MULTIMEDIA COMPUTING AND SYSTEMS, 1999. IEEE INTERNATIONAL CONFERENCE ON FLORENCE, ITALY 7-11 JUNE 1999, LOS ALAMITOS, CA, USA,IEEE COMPUT. SOC, US, 7 June 1999 (1999-06-07), pages 369-374, XP010342839 ISBN: 0-7695-0253-9 the whole document	1-13
A	US 5 778 100 A (CHEN HOMER H ET AL) 7 July 1998 (1998-07-07) abstract column 1, line 1 - line 48 column 3, line 3 -column 3, line 37 column 4, line 12 -column 6, line 60	1-13
A	KAUP A: "OBJECT-BASED TEXTURE CODING ON MOVING VIDEO IN MPEG-4" IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS FOR VIDEO TECHNOLOGY, IEEE INC. NEW YORK, US, vol. 9, no. 1, February 1999 (1999-02), pages 5-15, XP000802283 ISSN: 1051-8215 abstract Abschnitt "1. Introduction"	1-13

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5778100	A	07-07-1998	NONE	